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09/642,200	08/18/2000	Lisa C. Hammitt	BLAPP001	6794

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Peter B. Martine
Martine Penilla & Kim, LLP
Suite 170
710 Lakeway Drive
Sunnyvale, CA 94085

EXAMINER	
SHAFFER, ERIC T	
ART UNIT	**PAPER NUMBER**
3623	

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/642,200	Applicant(s) HAMMITT ET AL.	
	Examiner Eric T. Shaffer	Art Unit 3623	

-- Th MAILING DATE of this communication app ars on th cov r sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C:D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 August 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The following is an initial Office Action upon examination of the above-identified application on the merits. Claims 1 – 39 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1 - 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Bowman-Amuah (US 6,601,234).

4. As per claim 1, Bowman-Amuah discloses an ontology-driven information system, comprising:

a plurality of models, each of the plurality of models expressing an aspect of a business domain using concepts and relationships between concepts (column 127, lines 28 – 30, "they also model the business in terms of the real-world concepts that make up the domain e.g. entities, business, processes, roles");

an ontology in communication with each of the plurality of models, the ontology providing uniform definitions for the concepts and relationships between concepts used in the plurality of models (column 2, lines 19 - 21, "the attribute dictionary, which stores attribute names and values, is dispatched over a network").

5. As per claim 2, Bowman-Amuah discloses an ontology-driven information system as recited in claim 1, wherein the use of the uniform definitions in the plurality of models avoids redundancy (column 75, line 15, "a need to minimize data duplication") in the models, provides consistency between the models (column 23, line 2, "ensures consistency across systems"), and enables the plurality of models to provide an overall model of the business domain that is more expressive than an overall model based on a plurality of models that does not use uniform definitions (column 127, lines 28 – 30, "they also model the business in terms of the real-world concepts that make up the domain, e.g. entities, business processes, roles, etc").

6. As per claim 3, Bowman-Amuah discloses an ontology-driven information system as recited in claim 1, wherein the uniform definitions in the ontology can be changed on the fly by a business manager (column 28 , lines 31, "be able to quickly modify their business process").

7. As per claim 4, Bowman-Amuah discloses an ontology-driven information system as recited in claim l, further comprising:

a reasoning engine that reaches a conclusion based on a model of a domain and an inference procedure (column 52, lines 23 25, "The main engine translates the client requests into specific server calls. It handles security, authentication, statistics gathering and some system management tasks.");

a knowledge manager for storing and manipulating the ontology (column 2, lines 30 - 31, "attribute value in the attribute dictionary is obtained or updated if the verification is successful").

8. As per claim 5, Bowman-Amuah discloses an ontology-driven information system as recited in claim 4, further comprising:

a user and application interface for providing an interface for users and applications (column 57, lines 26, "a simplified developers interface");

a distributed information service for accessing disparate, distributed data sources (column 29, lines 13 - 14, "business data can be distributed between the client and server for optimal efficiency").

9. As per claim 6, Bowman-Amuah discloses a method for executing an interaction flow model, comprising:

receiving an event (column 252, lines 66 – 67, "notification is received that a startup event of an activity has occurred");

categorizing the received event (column 55, lines 53 - 55 , "Catalog Server offers query by full text, category, or attributes such as title, author, date, etc.");

identifying a situation that matches the categorized received event (column 54, lines 64 – 65, "returns documents that match the search criteria");

executing one or more tasks for the situation, the execution of the one or more tasks including one of an interpretation of a model and execution of a method of an object ("column 69, lines 5 – 7, "a request to a remote system to execute a designated procedure using the supplied arguments and return the result").

10. As per claim 7, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 6, wherein the receiving the event is by way of one of a distributed information service and a user and application interface (column 84, lines 1 - 2, "an intelligent network has the capability to actively manage the flow of information").

11. As per claim 8, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 6, wherein the categorizing is configured to generate a set of categories for previously handled events (column 182, lines 9 , "the ability to categorize components and search components according to property descriptions").

12. As per claim 9, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 6, wherein the executing one or more tasks for the situation includes: invoking one of an optimization engine, an inference engine, and a constraint satisfaction engine to interpret the model, the model including one of a rule base model, an optimization model, and a constraint model; wherein the interpretation of the model can include one of an infer action, a search with constraints action, an interact action, an optimize action, and a decide action (column 128, lines 5 - 7, "constraints include distribution requirements, legacy integration, performance constraints, existing components").

13. As per claim 10, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 9, wherein the interpretation of the rule base model includes executing

the inference engine to act upon the rule base model and produce a number of constraints (column 118, lines 1 – 2, "rule bases which define the possible flows for a business event").

14. As per claim 11, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 10, wherein the number of constraints are communicated to the constraint satisfaction engine, the constraint satisfaction engine being configured to search for a set of objects that match the number of constraints as well as constraints of the constraint model (column 54, line 62 – column 55, line 3, "Attribute Search--scans short lists (attributes) of important words that are associated with a document and returns documents that match the search criteria. For example, a user may query for documents written by a specific author or created on a particular date. Attribute search brings the capabilities of the SQL-oriented database approach to finding documents by storing in a database the values of specially identified fields within a document and a reference to the actual document itself.").

15. As per claim 12, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 11, wherein the set of objects are communicated to the optimization engine, the optimization engine communicating with the optimization model so as to produce an optimized object that is recorded, the recording of the optimized object being indicative of the handling of the identified situation (column 188, lines 33 - 35, "performance optimizations are realized through cognitive analysis, or tool-assisted profiling").

16. Claims 13 - 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Kiss et al (US 6,484,155).

17. As per claim 13, Bowman-Amuah discloses an information system, comprising:

a user and an application interface (column 5, line 14, "the user interface layer includes a user agent");

a reasoning engine in communication with the user and application interface (column 2, lines 43 - 49, "a knowledge management system that supports inquiries of distributed knowledge resources. Those inquiries may be in the form of questions or problem statements presented by a user. Interaction between a user and the knowledge resources is mediated by a collection of cooperative intelligent agents");

a knowledge manager in communication with the user and application interface interfaced with the reasoning engine (column 6, lines 28 – 30, "the knowledge agent layer provides the direct interface and interaction mechanism for the knowledge modules within the knowledge module layer");

a distributed information service in communication with the reasoning engine, the knowledge manager, and the user and application interface (column 2, lines 44 - 45, "a knowledge management system that supports inquiries of distributed knowledge resources");

wherein the reasoning engine is configured to work in conjunction with the knowledge manager so as to enable the reasoning engine to handle events by executing one or more specific tasks prescribed by the knowledge manager to handle the events most appropriately (column 2, lines 54 - 55, "problem statements as sets of tasks").

18. As per claim 14, Bowman-Amuah discloses an information system as recited in claim 13, wherein the knowledge manager includes an interaction flow model that is a repository for abstract situations to handle the events received by the reasoning engine, the situations defining the one or more tasks that are to be executed by the reasoning engine (column 2, lines 61 - 63, "the invention adaptively and dynamically synthesizes problem-specific knowledge interfaces and reasoning procedures as the problem-solving process").

19. As per claim 15, Bowman-Amuah discloses an information system as recited in claim 14, wherein the reasoning engine includes an interaction flow engine that is configured to receive the events, to invoke a categorization engine to categorize the events, and to interface with the interaction flow model of the knowledge manager (column 2, lines 54 - 55, "the invention analyzes input problem statements and organizes the problem statements as sets of tasks").

20. As per claim 16, Bowman-Amuah discloses an information system as recited in claim 15, wherein the interaction flow engine is configured to process through the one or more tasks by invoking at least one of an inference engine, a constraint satisfaction engine, an optimization engine, and an external application (column 188, lines 33 - 35, "performance optimizations are realized through cognitive analysis, or tool-assisted profiling").

21. As per claims 17 and 18, Bowman-Amuah discloses An information system as recited in claim 16, wherein the inference engine of the reasoning engine executes the event in conjunction with rules obtained from a rule base model of the knowledge manager to generate a number of

constraints that are communicated to the interaction flow engine of the reasoning engine, the constraint satisfaction engine being configured to produce a set of solutions (column 2, lines 43 - 49, "knowledge management system that supports inquiries of distributed knowledge resources. Those inquiries may be in the form of questions or problem statements presented by a user. Interaction between a user and the knowledge resources is mediated by a collection of cooperative intelligent agents").

22. As per claims 19 and 20, Bowman-Amuah discloses An information system as recited in claim 16, wherein the optimization engine is configured to receive the set of solutions from the interaction flow engine and optimization model data to generate an optimized solution, the optimized solution being communicated to the distribution information service wherein the optimized solution is recorded (column 7, lines 11, "the mapping may be used by the meta agent to optimize problem solutions").

23. As per claim 21, Bowman-Amuah discloses An information system as recited in claim 13, wherein the reasoning engine includes:

an interaction flow engine (column 12, line 21, "the flow of inferencing as a problem presented by a user is solved through distributed inferencing");

an inference engine (column 2, line 51 – 52, "distributed inference process");

a constraint satisfaction engine (column 8, lines 36 - 37, "development of search-space constraints");

an optimization engine (column 7, lines 10 - 11, "mapping may be used by the meta agent to optimize problem solutions");

a categorization engine (column 2, line 54, "organizes the problem statements as sets of tasks");

a data mining engine (column 1, line 45, ""database search engines have the ability to manage information finding and retrieval);

wherein the interaction flow engine is in communication with the categorization engine, the inference engine, the constraint satisfaction engine and the optimization engine, the interaction flow engine being configured to invoke one or more of the categorization engine, the inference engine, the constraint satisfaction engine and the optimization engine to generate recommendations based on a profile of a user, rules obtained from the knowledge manager, constraints obtained from the knowledge manager, and an ontology (column 3, lines 33 - 36, "each agent in the system includes inter-agent abstract communications facilities with the capability to negotiate with each other, conduct joint planning, and to collaborate in the execution of planned tasks").

24. As per claim 22, Bowman-Amuah discloses information system as recited in claim 21, wherein the profile includes interests of a user and wherein the constraints include business expertise and goals of the user (column 2, lines 63 - 67, "the invention extends automated inference capability to make use of a large number of knowledge sources of different types, in different locations, and covering different domains of expertise").

25. As per claims 23 and 24, Bowman-Amuah discloses an information system as recited in claim 21, wherein the interaction flow engine is configured to specify reasons regarding the generated recommendations, such reasons including identifying feedback received from the user, the optimization models used to generate the recommendations, and the rules used to generate the recommendations (column 8 , lines 52 – 54, "formats related to factual answers, decisions, recommendations").

26. As per claim 25, Bowman-Amuah discloses an information system as recited in claim 21, wherein the knowledge manager includes:

an interaction flow model (column 12, line 21, "the flow of inferencing as a problem presented by a user is solved through distributed inferencing"); a rule base model (column 7, line 25, "a problem-specific rule network");

a constraint model (column 8, lines 36 - 37, "development of search-space constraints");

an optimization model (column 7, lines 10 - 11, "mapping may be used by the meta agent to optimize problem solutions");

a conceptual model (column 4, line 26, "a conceptual overview of one embidiment");

a predictive model (column 8, line 27, "predicting the outcome of a course of treatment");

an ontology (column 6, line 19 - 20, "ontological, syntactic and semantic properties").

27. As per claim 26, Bowman-Amuah discloses an information system as recited in claim 25, wherein each of the interactive flow model and the ontology is in communication with the rule base model, the constraint model, and the optimization model, wherein the interactive flow model is configured to manage interaction flows with each of the rule base model, the constraint model, and the optimization model, and wherein interaction flows include a number of situations and each situation has a context description that contains event concepts that a situation of the number of situations requires to occur (column 3, lines 33 - 36, "Each agent in the system includes inter-agent abstract communications facilities with the capability to negotiate with each other, conduct joint planning, and to collaborate in the execution of planned tasks").

28. As per claim 27, Bowman-Amuah discloses an information system as recited in claim 26, wherein the interaction flow model is configured to be compiled for execution by the interaction flow engine (column 2, lines 6 - 8, "allocation of knowledge processing hardware resources and of the execution of the knowledge representation of those hardware resources").

29. As per claim 28, Bowman-Amuah discloses an information system as recited in claim 27, wherein the ontology defines a meaning of terms used by the interaction flow model (column 6, lines 3 - 4, "determine any ontological and semantic similarities").

30. As per claim 29, Bowman-Amuah discloses an information system comprising:

a reasoning engine configured to derive a set of conclusions using a set of premises and to execute actions that are attached to the set of conclusions, wherein a plurality of models encode the set of premises (column 2, lines 43 - 47, "The present invention overcomes the problems identified above by providing a knowledge management system that supports inquiries of distributed knowledge resources. Those inquiries may be in the form of questions or problem statements presented by a user");

a knowledge manager, the knowledge manager being a repository of the plurality of models, each of the plurality of models defining situations that occur in decision making to achieve a goal state, and the knowledge manager including an ontology to provide consistency between the plurality of models (column 6, lines 29 - 31, "the knowledge agent layer provides the direct interface and interaction mechanism for the knowledge modules within the knowledge module layer").

31. As per claims 30 and 32, Bowman-Amuah discloses an information system as recited in claim 29, further comprising a distributed information service in communication with each of the reasoning engine and the knowledge manager, the distributed information service being configured to provide a link to external modules and external applications to the reasoning engine and the knowledge manager without requiring direct access to disparate information sources handled by the reasoning engine and the knowledge manager (column 2, lines 43 – 49, "a knowledge management system that supports inquiries of distributed knowledge resources. Those inquiries may be in the form of questions or problem statements presented by a user.

Interaction between a user and the knowledge resources is mediated by a collection of cooperative intelligent agents").

32. As per claim 31, Bowman-Amuah discloses an information system as recited in claim 30, wherein each of the disparate information sources is accessed using a uniform resource identifier (URI), which is a logical name that hides a location and an access protocol of each of the disparate information sources (column 3, 40 – 42, "The registry identifies each agent's capabilities and interests, and contains knowledge about the relationships between them. The meta agent layer and the knowledge agent layer may confer with the agent service layer to identify those other resources capable of furthering the problem-solving process").

33. As per claim 33, Bowman-Amuah discloses an information system as recited in claim 32, wherein the user and application interface includes a system administration interface, an application deployment interface, a business modeling interface, an application object system, and a delivery channel interface (column 5, lines 15 - 17, "the user agent is endowed with knowledge of display metaphors, user I/O formats, and problem domains. The user agent mediates the direct interactions between a user and the knowledge management system, affording control of a window into the environment's activities").

34. As per claim 34, Bowman-Amuah discloses an information system as recited in claim 30, wherein the distributed information service includes a data model, a query service, a naming service, a storage system, a schema manager, and a mapping service (column 3, lines 21 - 23,

"one or more intelligent agents responsible for one portion of the distributed problem-solving inferencing process").

35. As per claim 35, Bowman-Amuah discloses an information system as recited in claim 34, wherein the storage system includes resource adapters (column 6, lines 35 - 37, "convert that problem statement into a format appropriate for the knowledge module").

36. As per claim 36, Bowman-Amuah discloses a computer readable media having program instructions for executing an interaction flow model, comprising:

program instructions for receiving an event (column 9, line 15, "the meta agent receives all responses and stores them");

program instructions for categorizing the received event (column 2, lines 54 - 55, "organizes the problem statements as sets of tasks");

program instructions for identifying a situation that matches the categorized received event (column 2, lines 18 - 19, "any query much match an existing entry in the knowledge dictionary");

program instructions for executing one or more tasks for the situation, the execution of the one or more tasks including one of an interpretation of a model and execution of a method of an object (column 3, lines 33 - 34, "a knowledge-based system to formulate and execute a problem-solving process").

37. As per claim 37, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 36, wherein receiving the event is by way of one of the distributed information service and the user and application interface (column 2, lines 43 - 45, "a knowledge management system that supports inquiries of distributed knowledge resources").

38. As per claim 38, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 36, wherein the categorizing is configured to generate a set of categories for previously handled events (column 8, lines 2 – 4, "meta agent chooses knowledge agents that have a history of rapid response or that can tailor their problem solving to real time").

39. As per claim 39, Bowman-Amuah discloses a method for executing an interaction flow model as recited in claim 36, wherein the executing one or more tasks for the situation includes:

program instructions for invoking one of an optimization engine, an inference engine, and a constraint satisfaction engine to interpret the model, the model including one of a rule base model, an optimization model, and a constraint model (column 7, lines 11, "the mapping may be used by the meta agent to optimize problem solutions");

wherein the interpretation of the model can include one of an infer action, a search with constraints action, an interact action, an optimize action, and a decide action (column 2, lines 44 - 45, "a knowledge management system that supports inquiries of distributed knowledge resources").

Conclusion

40. No claims were allowed and all claims were rejected.

41. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rosenschein et al. (US 6,519,631) – Web based information retrieval
Bergman et al. (US 6,564,263) – Multimedia descriptor
Liddy et al. (US 6,304,864) – Multimedia intelligent agent
Subramanian et al. (US 6,546,381) – Query optimization method
Baclawski (US 6,505,191) – Distributed computer database
Ahamed et al. (US 5,628,011) – Artificial intelligence decision system
Ahamed (US 5,465,319) – Knowledge processing system
http://www-ksl.stanford.edu/kst/what-is-an-ontology.html - Definition of ontology

42. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric Shaffer whose telephone number is (703) 305-5283. The Examiner can normally be reached on Monday-Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (703) 305-9643.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:
Commissioner of Patents and Trademarks
Washington D.C. 20231

Or faxed to:

(703) 746-7238 [After Final communications, labeled "Box AF"]

(703) 746-7239 [Official communications]

(703) 706-9124 [Informal/Draft communications, labeled "PROPOSED" or "DRAFT"]

Hand delivered responses should be brought to Crystal Park 5, 2451 Crystal Drive, Arlington, VA, 7th floor receptionist.

ETS
September 10, 2003

TARIQ R. HAFIZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600